Abstract

A time resolved, nonlinear complex susceptibility measuring apparatus (1) that is capable of measurement unaffected by any distortion of the wave front of a probe light whereby a temporal change in the nonlinear complex susceptibility of a nonlinear optical material that occurs when it is irradiated with a light pulse in a femtosecond range is measured using a pair of polarized lights orthogonal to each other which are formed by splitting a single light pulse into a reference and a probe light (5) and (6) in a polarized light splitting Sagnac type interference light path (8). A direction of polarization converting mechanism for rotating a direction of polarization of the reference and probe lights by an angle of 90° in the polarized light splitting Sagnac type interference light path is included to align the directions of polarization on a test specimen (3). A phase difference between the reference and probe lights which are output from the polarized light splitting Sagnac type interference light path is swept by a phase difference sweep mechanism (9) whereby a time resolved, nonlinear complex susceptibility is found from a phase difference sweep interference waveform obtained by measuring the intensity of interference light between the reference and probe lights for each of such phase differences swept.